

Dialysis – an introduction (Overview)

This infoKID topic is for parents and carers about children's kidney conditions.

This leaflet has the overview only.

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Dialysis is an important treatment for kidney failure – when the kidneys stop working properly. Dialysis uses special equipment to remove extra water and waste products from the blood. This partly replaces the work of healthy kidneys.

Your child may need dialysis if he or she is in kidney failure – this may happen suddenly or over time. There are two main types of dialysis – haemodialysis and peritoneal dialysis. Both of these require surgery before the dialysis can start. In many cases, families can decide the best type of dialysis for their child, in discussion with their healthcare team.

→ Dialysis is a life-saving treatment for children in kidney failure. Dialysis is a complex and time consuming treatment which will impact your family life. Your child's healthcare team will give you more information and support you and your child throughout treatment.

This topic covers:

- why and when your child may need dialysis
- how dialysis works
- the benefits, risks and alternatives
- your child's healthcare team
- introduction to two types of dialysis, to help you choose the best type for your child
- how to support your child on dialysis.



About the kidneys

The **urinary system** gets rid of things that the body no longer needs, so that we can grow and stay healthy.

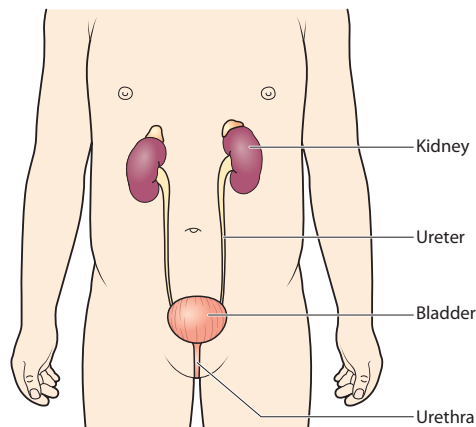
The **kidneys** are bean-shaped organs. They filter blood to remove extra water and waste in urine (wee). Most of us have two kidneys. They are on either side of our spine (backbone), near the bottom edge of our ribs at the back.

The two **ureters** are long tubes that carry urine from the kidneys to the bladder.

The **bladder** is a bag that stores urine until we are ready to urinate. It sits low down in the tummy area.

The urethra is a tube that carries urine from the bladder to the **outside** of the body.

» [More about the urinary system and kidneys](#)



Why dialysis is needed

Your child may need dialysis if he or she is in kidney failure.

About kidney failure

The term **kidney function** is used to describe how well the kidneys are working – especially how they filter blood and make urine. In kidney failure, the level of kidney function is too low to support the body. This may happen suddenly or over a long time.

- **Acute kidney injury (AKI)**: in AKI, the kidney function gets worse over a short period of time. Some children with severe AKI need dialysis for a few weeks or longer until their kidneys start working again.
- **Chronic kidney disease (CKD)**: in some children with CKD, the kidney function gets worse over a long period of time. CKD has five stages, and kidney failure happens in stage 5. It is also called **end stage renal failure (ESRF)** or **established renal failure**. Most children with stage 5 CKD need dialysis and/or a kidney transplant.

About dialysis

Dialysis is one type of **renal replacement therapy**. This means it partly replaces the work of kidneys (“renal” means to do with the kidneys).

What dialysis can do

The two main types of dialysis work in different ways, but their job is the same – to clean the blood. Dialysis removes extra water and waste products from the blood. If these are not removed, they might build up in the body and cause illness and **fluid overload** (too much water in the body). Dialysis also makes sure there is a balance of chemicals in the blood – especially **potassium**, which can be dangerous in large amounts – and that the blood is not too acidic.

Dialysis does about 10–15% of the work of healthy kidneys. However, this is enough to make sure the body keeps working.

Some children feel better after starting dialysis and/or have a better appetite. Your child will be assessed while he or she is on dialysis, and may need to continue restricting what he or she eats and drinks.

What dialysis cannot do

Dialysis does not do *everything* that kidneys do – such as help keep bones healthy and make red blood cells. Your child will take medicines to help with this.

Dialysis for your child

Your child’s healthcare team will work out the most suitable dialysis treatment for your child, after talking to you about your preferences, and working out your child’s individual health needs.

Types of dialysis

There are two main types of dialysis.

- **Haemodialysis (HD)** – using a machine with an ‘artificial kidney’. Blood is pumped out of the body and into the artificial kidney, and the cleaned blood is returned to the body. Each dialysis session takes 3–4 hours, and is done three or more times a week. Haemodialysis usually takes place in the hospital, but some children are able to use haemodialysis at home.
- **Peritoneal dialysis (PD)** – using the **peritoneum**, which is the lining of the abdomen (tummy). A special fluid is put into the abdomen, where it sits for a few hours or longer while the peritoneum filters the blood. The used fluid is drained out of the body. This can take place overnight or several times a day.

For most children, all types of dialysis work equally well at removing waste and water from the blood. They differ in a few ways:

- where dialysis takes place – in the hospital or at home
- how often a dialysis session is required
- how long each dialysis session lasts
- surgery needed before the dialysis can start
- the risks and side-effects.

Your child’s healthcare team will give you information so you understand the benefits and risks of each type. In many cases, families can decide the best type of dialysis. However, a few children need a particular type.

Preparing for dialysis

Before dialysis can start, your child will need a procedure to get access to his or her body. This depends on the type of dialysis and how quickly it is needed.

Haemodialysis

- A **central venous line** (or **line**) is a long, thin tube (**catheter**) that is placed into one of the large blood vessels in the body. This is usually in the neck or chest, or occasionally the groin.
- For short-term use, a temporary line can be placed. For long-term use, a **permanent line** can be placed in theatre, under general anaesthetic.
- Another option for long-term use is a **fistula** – two blood vessels are joined up to make one larger, stronger blood vessel. This is done several weeks before dialysis starts.

Peritoneal dialysis

A **catheter** is placed through the tummy wall.

Risks

Dialysis is a crucial, life-saving treatment for children in kidney failure. The vast majority of children with kidney failure are able to have this treatment. However it has side-effects, has an impact on your child's and family's lifestyle, and carries risks.

- The **catheter** – a long, thin tube that is inserted for some types of dialysis – may become infected. Your child's healthcare team will show you how to care for the catheter and the skin around it (**exit site**) to reduce this risk and check for signs of infection so it can be treated quickly.
- Some children feel more tired than usual after being on dialysis. There may be other side-effects and risks, depending on the type of dialysis.
- Dialysis is a complicated treatment, and it will have a large impact on your child's and family's lives. If your child has dialysis at home, you will be trained to use the equipment. If your child has dialysis at the hospital, he or she will need to travel to the dialysis unit three or more times a week.
- Dialysis, and living with kidney failure, can also have a huge emotional impact on a child and his or her family.

There are also some specific risks of each type of dialysis.

Alternatives

Kidney transplant

For children with **renal failure** (stage 5 CKD), the best treatment for kidney failure is a **kidney transplant**. However, having a kidney transplant depends on a suitable kidney donor – deceased or live – being available and the child being ready to have a kidney transplant. After a successful kidney transplant, and by taking medicines to protect their new kidney, children can live full and healthy lives.

The timing of kidney transplantation depends on many factors, including the availability of suitable donors. Some children need to have dialysis while they wait for this procedure. Babies and younger children under 2 years may need to wait until they grow large enough to have a kidney transplant.

Conservative treatment

If children with kidney failure do not have dialysis or a kidney transplant, their kidneys will eventually stop working until they can no longer support the body, and these children will eventually die. This is called **conservative treatment** or **palliative treatment**. Children are made as comfortable as possible – but may continue taking medicines and restricting their diet and fluid intake to manage symptoms.

A very small number of babies and children with kidney failure may not benefit from dialysis. Choosing not to start or continue with dialysis is a very difficult and personal decision. Your child's healthcare team will support you and your family throughout this time.

Paediatric renal unit and dialysis team

Your child's **paediatric renal unit** – a specialised unit for children with kidney conditions – will manage your child's dialysis. If your child is having haemodialysis at the hospital, it will take place here.

You will be introduced to a team of healthcare professionals who will support your child and family throughout his or her dialysis. Your child will continue to be looked after by a **paediatric nephrologist**, as well as **renal nurses**, who specialise in looking after children on dialysis and will check that your child is growing and they are as healthy as possible.

» [Read more on the next page](#)

Supporting your child

Dialysis can be a difficult and stressful experience for your child and the whole family. You and your child will learn more over time about how to help live with dialysis.

Your child's healthcare team is there to help you. They can provide support with your child's education, accessing financial benefits and planning holidays around dialysis.

Speaking with other families of children on dialysis can also be a huge support.

→ [If you have any concerns or need additional support, speak with your doctor or nurse.](#)

» [More about dialysis on \[www.infoKID.org.uk\]\(http://www.infoKID.org.uk\)](#)

Hospital visits

A team of healthcare professionals will:

- check your child's **kidney function** (how well his or her kidneys are working)
- measure how much your child is drinking and how much urine he or she is passing
- test your child's **urine** with a dipstick
- check your child's **blood pressure**.

Healthcare team

Your child's healthcare team may include:

- **paediatrician** – a doctor who treats babies, children and young people
- **paediatric nephrologist** – a doctor who treats children with kidney problems
- **paediatric surgeon** – a healthcare professional who treats children using surgery (operations)
- **radiologist** – a healthcare professional who uses **imaging tests** (scans) to help identify a condition
- **renal nurse** – a nurse who cares for children with kidney problems
- **renal dietitian** – a healthcare professional who advises what your child should eat and drink during different stages of a kidney condition
- **renal social worker** – a professional who supports you and your family, especially with any concerns about money, travel and housing related to looking after your child with kidney disease
- **renal psychologist** – a healthcare professional who supports your child and family, especially with emotional stresses and strains from having to look after a child with kidney disease
- **play specialist** – a professional who uses dolls and other toys to help your child prepare for procedures, such as blood tests and dialysis

Your notes and contact information

www.infoKID.org.uk



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